

(2) For metal intermediate bulk containers intended to contain liquids, when subjected to the 200 kPa (29 psig) and the 250 kPa (36 psig) test pressures specified in paragraphs (d)(2) and (d)(3) of this section, respectively, there may be no leakage.

(3) For rigid plastic intermediate bulk container types 21H1, 21H2, 31H1, and 31H2, and composite intermediate bulk container types 21HZ1, 21HZ2, 31HZ1, and 31HZ2, there may be no leakage and no permanent deformation which renders the intermediate bulk container unsafe for transportation.

§ 178.815 Stacking test.

(a) *General.* The stacking test must be conducted for the qualification of all intermediate bulk container design types intended to be stacked.

(b) *Special preparation for the stacking test.* (1) All intermediate bulk containers except flexible intermediate bulk container design types must be loaded to their maximum permissible gross mass.

(2) The flexible intermediate bulk container must be filled to not less than 95 percent of its capacity and to its maximum net mass, with the load being evenly distributed.

(c) *Test method.* (1) All intermediate bulk containers must be placed on their base on level, hard ground and subjected to a uniformly distributed superimposed test load for a period of at least five minutes (see paragraph (d) of this section).

(2) Fiberboard, wooden, and composite intermediate bulk containers with outer packagings constructed of other than plastic materials must be subjected to the test for 24 hours.

(3) Rigid plastic intermediate bulk container types and composite intermediate bulk container types with plastic outer packagings (11HH1, 11HH2, 21HH1, 21HH2, 31HH1 and 31HH2) which bear the stacking load must be subjected to the test for 28 days at 40 °C (104 °F).

(4) For all intermediate bulk containers, the load must be applied by one of the following methods:

(i) One or more intermediate bulk containers of the same type loaded to their maximum permissible gross mass

and stacked on the test intermediate bulk container; or

(ii) The calculated superimposed test load weight loaded on either a flat plate or a reproduction of the base of the intermediate bulk container, which is stacked on the test intermediate bulk container.

(d) *Calculation of superimposed test load.* For all intermediate bulk containers, the load to be placed on the intermediate bulk container must be 1.8 times the combined maximum permissible gross mass of the number of similar intermediate bulk containers that may be stacked on top of the intermediate bulk container during transportation.

(e) *Criteria for passing the test.* (1) For metal, rigid plastic, and composite intermediate bulk containers there may be no permanent deformation which renders the intermediate bulk container unsafe for transportation and no loss of contents.

(2) For fiberboard and wooden intermediate bulk containers there may be no loss of contents and no permanent deformation which renders the whole intermediate bulk container, including the base pallet, unsafe for transportation.

(3) For flexible intermediate bulk containers, there may be no deterioration which renders the intermediate bulk container unsafe for transportation and no loss of contents.

[Amdt. 178–103, 59 FR 38074, July 26, 1994, as amended by Amdt. 178–119, 62 FR 24743, May 6, 1997]

§ 178.816 Topple test.

(a) *General.* The topple test must be conducted for the qualification of all flexible intermediate bulk container design types.

(b) *Special preparation for the topple test.* The flexible intermediate bulk container must be filled to not less than 95 percent of its capacity and to its maximum net mass, with the load being evenly distributed.

(c) *Test method.* A flexible intermediate bulk container must be toppled onto any part of its top upon a rigid, non-resilient, smooth, flat, and horizontal surface.